

But we intended gossiping, not grumbling, and so will here close a brief record of a pleasant trip.

#### SOME CONTRIBUTIONS TO THE ELUCIDATION OF THE CONSTRUCTIVE DETAILS OF SANITARY ARCHITECTURE.

The sanitary movement is undoubtedly one of the most important social questions of the age; for some years it has taken up the attention of our legislators and philanthropists; a large mass of evidence has been industriously collected, and there has been presented an amount of proof "altogether irresistible," of the necessity there is for some practical measures to be introduced. And since it has been fully proved that the present state of matters cannot exist without incurring danger to our social condition, men eminent in their respective professions have begun to direct their attention to the carrying out of efficient remedies. Architects and engineers consider the question as closely connected with their professions, and look upon the field thus opened up to them as one of immense importance. The present state of society and the force of public opinion demand imperatively from them, "as absolute and indispensable arrangements, all those combinations commensurate with the claims of humanity," and it is by their "professional skill and experience that such measures can alone be effectively realized."

With very few exceptions, it has been the practice to "run up" structures without the slightest regard to the real comfort of the inhabitants. Healthy structural arrangements are, however, fast becoming to be considered as of paramount importance; and as, in all likelihood, legislative enactments will soon be enforced for carrying them in every case into effect, it has become a matter of necessity with builders, &c., to have a clear understanding as to the requisites for such improvements.

With a view to assist practical men in considering the improvements to be adopted in some of the various cases that may be presented to them, the following remarks have been drawn up:—

Before entering into the consideration of other matters, it may not be amiss to notice, very briefly, the importance of a good supply of light, with reference to the health of the inhabitants of houses, and the necessity there is for particular attention being paid to this point. Such remarks may be, by some, considered as altogether unnecessary. Parties are rather apt to blame the window-tax, as being the cause of all sins of omission and commission on this head. That there is truth in this statement, a glance at many of the houses around us, both in town and country, will amply prove. But it is not always so. Else why should window arrangements be made in such a way as to exclude a large portion of the light, which would otherwise be available? We could point out several houses, otherwise well arranged, in a great degree spoiled, gloomy, and cheerless, even when the sun is up, by the clumsy and ill-devised arrangement and construction of the windows. The slightest contrivance (of course, first prompted by a knowledge of the importance of a good supply of light) would easily have obviated this, and rendered the houses in every way faultless. We are now writing in a district not many dozen miles from a house the construction of which cost no less a sum than 32,000*l.*; and yet, would it be believed that the entrance-hall is so clumsily lighted that in broad day it is a matter of difficulty to distinguish its extent or the objects placed in it! And a handsome corridor is completely spoiled from the want of effective light. In one large establishment the whole range of servants' rooms was miserably lighted, by windows, mere pigeon-holes; and the sills so high from the floor that no one sitting could take advantage of a very delightful external prospect. But the same fault can be found with numerous houses—where the sitting-rooms are completely spoiled from high, small windows. Certainly the architects and builders who can commit such blunders can have no very clear idea of the importance, in a sanitary point of view, of a good supply of light, as we cannot

conceive of their sinning willingly against the light of reason.

The result of the investigations on the subject of light has proved, that a close and intimate connexion exists between it and the performances of the higher functions of animal and vegetable existence. Plant a pea, for instance, in a dark cellar, what is the consequence? It takes root, and grows doubtless; but the shoots it throws out, are they vigorous, and possessed of that healthy green colour, the effect of the existence of healthy juices? No! pale and sickly the plant droops, growing still, but never arriving at fructifying maturity. As with vegetable, so with animal life: in many of our large towns are dark cellars and rooms, lanes, and alleys, in which the glorious light of day never enters, and which are inhabited by wretched beings,—the grown up, pale and sickly,—the young, stunted and deformed. Dupuytren, a celebrated continental physician, mentions the case of a French lady whose disease baffled the skill of the most eminent medical men. This lady resided in a dark room, in which the sun never shone, in one of the narrow streets of Paris. After a careful examination Dupuytren was led to refer her complaint to the absence of light, and recommended her removal to a more cheerful situation: the change was attended with the most beneficial results—all her complaints vanished. Returning to our illustration of the pea: in the cellar wall make an aperture admitting light; however distant the plant may be from this, it will instinctively draw near it, and on reaching it fresh green leaves will soon appear. And so in the case of hundreds of our fellow countrymen, who live almost without light; supply them with it, and many of their diseases will disappear. Certain it is that deficient light is a powerfully predisposing cause of disease and sickness.

We have already shown that there is room for improvement in the placing and construction of windows of the houses of the better sort. It is, however, in connection with those of the labouring classes that improvements are most desirable. In such places the requisites (of windows) to be considered are—cheapness of original cost, and easy repair of the frames when broken. Cast-iron frames seem to possess superior advantages over other materials; but strong galvanised iron may also be used with advantage. It would be well if a certain size of square could be universally adopted for certain sizes of frame for the houses of the labouring classes. One very obvious advantage of such an arrangement would be, that the exact size of glass would be manufactured; and being easily obtainable at a low rate, could be fastened in by the owner or occupier of the tenement, without the aid of a special workman. At present, "when glass is broken, recourse is had to the most unseemly substitutes; these may annoy the inmate at first, but he soon becomes habituated to them; one eyesore prepares him for another, and in a short time the same slovenliness and disorder spread over the whole establishment." In remodelling old tenements, we should recommend the owners to consider whether the plan of inserting cheap durable frames which could be kept up at small cost, would not be more economical than repairing the old cumbersome and expensive ones we too often see in these times of improvement. It would be well for mechanics to turn their attention to the improvement of this department, to the bringing out of a plan at once cheap in original cost, and easily maintained in repair. The fate of the abominable window-tax is, we believe, sealed; its abolition is now a mere question of time.

Pure and sparkling to the eye, agreeable to the taste, nourishing to the body, water, whether it murmurs in our country brooks and streamlets, flows in crystal streams in our inland rivers, gushes forth clear, cool, and bright from the hidden springs in rocky beds, or spreads itself out in liquid mirrors in the ponds and lakes of our inland solitudes, is one of the most precious gifts a beneficent God has given to man—a gift, the rare value of which cannot be over-estimated; and whether it be considered as a means of sustaining life, or as conducive to habits of cleanliness, a pure and plentiful supply to the inhabitants of our dwelling-places is absolutely necessary. Considered as an aliment, water forms an im-

portant constituent in the food of man; without it life languishes, and death arising from its want is one of the sufferings and agonies of which are horrible in the extreme. The supply of water being in many of our towns notoriously deficient, is the cause of many evils, both physical and moral; habits of uncleanness amongst the poorer classes, both personal and domestic, are induced, which lead to recklessness, dissipation, and crime. It is a melancholy and striking fact, that in those districts in which uncleanness is most prevalent, solely from want of water, crime most abounds, and not only so, but disease in their filthy unwashed bowels is never absent.

From the agitation on the subject we hope to see the day when water shall be as plentifully supplied to the habitations of all classes throughout the kingdom as it is in the hills and chalk basins, valley streams, and mountain reservoirs, placed there for beneficent purposes, but to obtain which that labour demanded of all men must be first expended. And for no nobler and more useful purpose can such labour be bestowed. The benefits resulting from copious supplies of water need not be here enumerated, they are sufficiently obvious to all; but in connection with another important branch of sanitary improvement, the great value of such must not be overlooked. We refer to the efficient working of our drains and sewers. However efficient these may be in point of position and construction, it is evident that without an easily obtained supply of liquid, by which their contents can be removed, they cannot fail but to be almost totally worthless. Water, no matter whether "fair or foul," is the only sure and economical vehicle by which the matter from the houses can be speedily carried off. On this subject more hereafter.

The movements of all public bodies, legislative or otherwise, are proverbially slow and tedious, so that it will likely be some time ere we shall have the pleasure of seeing every house, no matter how low in the scale of society its inhabitants may be, provided with unlimited supplies of pure and wholesome water. In the meantime all means should be taken, not only for the economisation of the limited supplies which may be given to us, but also for taking advantage of that which Nature grants to all equally, whether rich or poor, "the just as well as the unjust,"—"rain-water." It is a notorious fact, that while the inhabitants of large and populous towns are maintaining lustily that they are woefully stinted in their supply of water, they allow to run to waste gallons upon gallons of valuable soft rain-water, without a single effort to retain a drop, while the inhabitants of other towns, "wiser in their day and generation," use all available means to catch and retain the descending showers. These are not designed to be regarded as useless, but are sent to fulfil important purposes—not less useful in the hard paved streets of our crowded towns, than in the plains and fields of our suburban districts. We have heard such woful waste justified, on the ground that the rain was allowed to run into the drains to cleanse and flush them. But it certainly is obvious that the same effect can be much better obtained by first using the water for domestic purposes, and thereafter sending it down properly-constructed openings, connected with efficient drains and sewers.

In the majority of cases, where tanks, cisterns, or barrels are used for the reception of the rain water, they are left open on purpose, as it were, to receive the decomposing and carbonaceous matters which generally float in the atmosphere above large towns. If a sheet of white calico be placed in the open air in a still day, in the midst of a densely populated manufacturing town, in a short space of time its whole surface will be found covered with sooty particles. Now this process is going on daily, and any one looking into the cisterns in the back yards of the houses in Manchester, Stockport, &c., will see a pretty thick layer of soot reposing on the surface of the water. Not content, then, with the matters which the water has taken up, in its passage through a sooty atmosphere, or over a sooty roof, the tanks or receptacles are left open, and no provision whatever is made for freeing the water by filtration from the particles thus imparted to it. It really is lamentable to think